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| PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS. | | | | | |
| 1. REPORT DATE (DD-MM-YYYY) 25/Jun/2001 | | 2. REPORT TYPE MAJOR REPORT | | 3. DATES COVERED (From - To) | |
| 4. TITLE AND SUBTITLE NUTRITIONAL LIFESTYLES OF COLLEGE WOMEN | | | | 5a. CONTRACT NUMBER | |
| | | | | 5b. GRANT NUMBER | |
| | | | | 5c. PROGRAM ELEMENT NUMBER | |
| 6. AUTHOR(S) CAPT HARMON MICHELLE M | | | | 5d. PROJECT NUMBER | |
| | | | | 5e. TASK NUMBER | |
| | | | | 5f. WORK UNIT NUMBER | |
| 7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) UNIVERSITY OF SOUTH CAROLINA | | | | 8. PERFORMING ORGANIZATION REPORT NUMBER CI01-116 | |
| 9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) THE DEPARTMENT OF THE AIR FORCE AFIT/CIA, BLDG 125 2950 P STREET WPAFB OH 45433 | | | | 10. SPONSOR/MONITOR'S ACRONYM(S) | |
| | | | | 11. SPONSOR/MONITOR'S REPORT NUMBER(S) | |
| 12. DISTRIBUTION/AVAILABILITY STATEMENT Unlimited distribution In Accordance With AFI 35-205/AFIT Sup 1 | | | | | |
| 13. SUPPLEMENTARY NOTES | | | | | |
| 14. ABSTRACT | | | | | |
| 20010720 030 | | | | | |
| 15. SUBJECT TERMS | | | | | |
| 16. SECURITY CLASSIFICATION OF: | | | 17. LIMITATION OF ABSTRACT | 18. NUMBER OF PAGES 11 | 19a. NAME OF RESPONSIBLE PERSON |
| a. REPORT | b. ABSTRACT | c. THIS PAGE | | | 19b. TELEPHONE NUMBER (Include area code) |

Running Head: NUTRITIONAL LIFESTYLES OF COLLEGE WOMEN

Nutritional Lifestyles of College Women

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Nutritional Lifestyle of College Women

A lifestyle characterized by inactivity and poor nutrition is the leading cause of premature death in the U.S., second only to smoking. The purpose of this study is to explore the nutritional lifestyle of college women, and to determine if there are differences in nutritional lifestyle, as well as, perception of health status between black and white college women. The study is a secondary analysis of data using Nola Pender's conceptual framework. The instruments used to collect the data were the Health-Promotion Lifestyle Profile (HPLP) and a background questionnaire. The sample included data collected from 340 South Carolinian college women (228 were white and 112 women were black). Results were analyzed using a *t* test to identify differences in nutritional lifestyles between the black and white women. The results indicated a significant ($P .00001$) difference. Black women relative to white women practiced fewer healthy nutritional activities. Chi-square was used to examine the perceived health status data between black and white women. The results indicated a significant (0.005) difference. Additionally, black women relative to white women perceived their health status lower than did the white women. Lastly, the Spearman correlation was used to analyze the relationship between nutritional status and perceived health status. The results indicated there was no significance relationship ($Z 0.877$). Based on these results further studies are needed to find an appropriate intervention to improve black women's nutritional lifestyle.

Nutritional Lifestyles of College Women

Background:

The Surgeon General's report *Healthy People 2010* (HP 2010) rated overweight/obesity as one of the Leading Health Indicators that need to be reduced to meet the HP 2010 goals. The HP 2010 goals are to increase the quality of years of healthy life and eliminate the health disparities between groups (Healthy People, 2001). The incidence of overweight/obesity has increased since 1980 for nearly all age, ethnic and gender groups. In 1976-80 the baseline was 24%, for overweight adult males ages 20-74 years, and increased to 34%, in 1988-94 period. Overweight/obesity rate of occurrence for adult females increased from the 27% to 37% in the same period. Additionally, overweight/obese adolescents aged 12-19 increased from the base line of 15% to 24% (Healthy People, 2001). Furthermore, blacks have had an even more rapid increase in obesity as evidenced by the table from the CDC (2001) *Prevalence of Obesity among U.S. Adults, by characteristics* (See table in appendix).

Despite current education of children and adolescents in school smoking, inactivity, and obesity continue to rise in the United States. According to the CDC a lifestyle characterized by inactivity and poor nutrition is the leading cause of 300,000 premature deaths in the U.S., second only to tobacco related deaths (2001). Nutritional lifestyles influence chronic disease either by directly causing a specific disease, enhancing the risk of obtaining a disease, decreasing the risk of a disease, or preventing a disease (Weisburger, 2000). Most chronic diseases have a nutritional component. For example, risk factors for the development of diabetes are obesity and inactivity (Jefferson et al 2000). Additionally, a diet high in saturated fat increased the risk for heart disease, and colorectal cancer (Weisburger, 2000). While a diet high in salt increases the risk for strokes and stomach cancer (Weisburger, 2000)

The US Department of Health and Human Services (USDHHS) reported diabetes is the fourth leading cause of death for black women in the United States (1997). The National Institute of Health (NIH) reported 1 in 4 black women aged 55 or older has diabetes, which is double the rate of white women (NIH, 1992). Obesity is a significant risk factor for the development of diabetes as is ethnicity (black), a high fat diet, lack of aerobic exercise and gender (female) (Jefferson et al 2000). Research supports the fact that black women have a higher propensity

towards obesity and cardiovascular risk and lower health-promoting behaviors than their white counterparts (Felton et al., 1997).

Research Purpose:

The purpose of this study is to explore the nutritional lifestyle and the perceived health status of black and white college women. Furthermore, the purpose of the study is to determine if there are differences in nutritional lifestyles and perceived health status between black and white college women.

Research Questions:

What is the nutritional lifestyle of college women based on the nutritional subscale of the HPLP, and is there a difference in the nutritional lifestyle of black and white college women based on the nutritional subscale of the HPLP?

Is there a relationship between perceived health status and nutritional lifestyles in of black and white college women?

Research variables:

The research variables are black and white college women's nutritional lifestyles and their perceived health status correlated with race.

Conceptual definition:

Nutritional lifestyle is the overall awareness of nutrition and what foods a person actually consume. Specific items included on the HPLP subscale are: reads labels to identify nutrients; eat breakfast; eat only 2-3 servings of meat, poultry, eggs a day; eat 2-3 servings of milk, yogurt or cheese a day; eat 3-5 servings of vegetables a day; eat 2-4 servings of fruit a day; eat 6-11 servings of bread, cereal rice, or pasta a day; limit sugars and sweets; and chooses a diet low in fat and cholesterol.

Limitations:

This analysis is a secondary data analysis of overall well being of college women, and a model development study on partner abuse. Nutritional lifestyle is only a small part of the original study. Other limitations

include the inclusion of only women who are between 18 and 22 years old. Another limitation is the fact that data on other races has not been included due to the small response size.

Theoretical Framework:

Pender's Health Promotion Model will be used to guide this study. Pender proposes that the health promoting behaviors are self-initiated perceptions and actions directed toward enhancing health and well being (Pender, 1987). Nola Pender's Health Promotion Model includes the role of nutrition in prevention. She believes biological, psychological, sociocultural, and environmental factors influence eating lifestyles (Pender, 1987).

Review of the literature:

Several studies have been done which examine gender or race differences in health promoting lifestyles. However, there are only a few studies that are specific to race and gender in health-promoting lifestyles. In one such study done by Ahijevych & Bernhard (1994), they used the Health-Promoting Lifestyle Profile (HPLP) to describe the health-promoting lifestyle behaviors among a sample of black women and compared it to previous findings using the HPLP. The results indicated black women had the lowest means on the nutrition subscale (Ahijevych & Bernhard 1994.)

In another study, a food selection made by college students was researched. Makrides et al. looked at the cardiovascular health needs of university students living in residence at a university in Nova Scotia, Canada (1998). The study demonstrated first-year students have an increased risk for making unhealthy lifestyle choices (Makrides et al., 1998). The results of the study showed 82% ate fewer than 3 servings of fruits and vegetables a day, 42% had fried foods 3 or more times a week, and 36% of the students gained 10 or more pounds their freshman year (Makrides et al., 1998).

Another study reviewed focused on the relationships between self-esteem, health promotion, nutrition, and weight gain among college freshmen. Megel et al., study results indicated the average weight gain to be 2.5 pounds (1994). Furthermore, there was a positive correlation between health promoting behaviors, self-esteem and nutrition (Megel et al., 1994). Thus, women who were more likely to exercise, avoid alcohol, and tobacco were also more likely to have a better nutritional lifestyle as well. However this study did not control for race.

A study done by Shi, in 1998, examined demographics and socioeconomic status to learn how they were related to health behaviors (i.e. exercise, smoking and nutrition.) However, Shi found race was not significantly associated with health behavior patterns (1998).

While, Felton et al., did a study comparing health behaviors of black and white college women while controlling for socioeconomics and body weight. (1997). Felton et al., found white students reported more frequent performance of health-promoting behaviors than did black students (1997). Felton found that her study concurred with Ahijevych & Bernhard's study, which also resulted in black women scoring lower on nutrition and interpersonal support (Felton et al., 1997). Felton (1997) believes culture has a major role in a person's nutritional lifestyle. It could be argued her study is supported by the CDC's (2001) table on *Prevalence of obesity among U.S. adults, region and state* (See table in appendix), since different regions have different cultures. The states with the highest prevalence of Obesity Among U.S. adults are interestingly enough are West Virginia, North Carolina, *South Carolina*, and Georgia (CDC 2001).

In a Swedish study done by Manderbacka, Lundberg, and Martikainen (1999), they looked at risk factors and health behaviors in relationship to self-ratings of health. They found that risk factors and health behaviors overall do not contribute to self-ratings of health. However, they did find an association between eating fresh vegetables and self-rated health (Manderbacka, Lundberg, & Martikainen, 1999). The less healthy the habit (less than daily consumption of fresh vegetables) the poorer the self-rating (Manderbacka, Lundberg, & Martikainen 1999).

Based on the literature review, the data obtained from the CDC, and the Surgeon General's Healthy People 2010 recommendations, it is clear more studies are need to determine why there are differences between black and white women. More studies are also needed to evaluate how to reduce the prevalence of obesity, especially in black women who are at a higher risk for developing chronic diseases such as diabetes. Likewise, the rate at which women gain weight when attended college needs to be addressed as well. Perhaps future studies may be guided by Pender's Health Promotion Model specifically looking at the biological, psychological, sociocultural, and environmental factors which influence eating lifestyles.

Method and procedures:

Methodology:

This study is a secondary analysis of data collected for "Factors related to the Well-Being of College Women" (Mackey, et al., 2000). The original study was a descriptive, correlational research study focusing on the possible factors related to the well being of college women.

Study design:

A questionnaire approach, non-experimental, descriptive correlational designs with a convenience sample.

Procedure:

The *procedure*, for the original study, included data collection from February to May 1999 on South Carolina campuses. Orientation to facilitate the student data collectors' understanding, as well as, a discussion of ethical considerations for the protection of human subjects and confidentiality was reviewed. A total of 425 surveys were distributed to college women and 354 were returned, indicating an 83% return rate. Nursing students administered the surveys used to collect the data from the women who met all of the criteria. The nursing students were all instructed on how to obtain consent and administer the questionnaires. The current study will analyze the previously collected data specifically exploring the nutritional lifestyle of college women and will determine if there is a difference between black and white college women's nutritional lifestyle.

Sample:

The *sample* included data collected from 354 South Carolinian college women. Two-hundred-twenty-eight were white and 112 women were black. The sampling criteria were women between 18 to 22 years of age currently attending a post high school institution, who were able to read and write English. Also, they agreed to participate and had not participated in this study before. The remaining 14 responders, who were not black or white, were excluded from the study because their numbers would not yield statistically significant results. See Table 1 for demographic details.

Instruments:

The main *Instrument* is the Health-Promoting Lifestyle Profile (HPLP). The HPLP is utilized to assess the likelihood a person will engage in health-promoting behaviors (Walker et al., 1987). The HPLP is a 52 item instrument which employs a 4 point Likert scale to measure the frequency a person engages in health-promoting behaviors (Walker et al., 1987). Subscales of the HPLP include self-actualization, health responsibility, exercise, nutrition, interpersonal support, and stress management (Walker et al., 1987). In previous studies the Cronbach alpha coefficients ranged from .70 to .90, and the Cronbach alpha coefficient for the total instrument was .92 (Walker et al., 1987). The current study had a Cronbach alpha coefficient for the total instrument of .94 and the subscale for nutrition was 0.79. Additionally a background questionnaire was utilized to obtain demographic information, and perceived health status.

Data analysis:

The data yielded a mean of 2.63 (SD 0.536) for the white women and a mean of 2.27 (SD 0.518) for the black women. A *t* test was used to analyze this data, and compared the black and white women's health promoting lifestyle profile. Then a Chi-square was used to examine the perceived health status between black and white women. Lastly, the Spearman correlation was used to analyze the relationship between nutritional status and perceived health status.

Results:

Difference in the nutritional lifestyle according to race in college women:

There is a statistically significant difference in the nutritional lifestyle between racial groups, as indicated by the table 2. White students have a significantly higher mean nutritional score than black students ($p < .0001$). This indicates black college women have a less healthy nutritional lifestyle than white college women do.

Differences in the perceived health status:

There is a statistically significant difference ($p=0.005$) in the perceived health status of black and white college women. Black women are more likely to have a rated their health statuses lower than white women are. See Table 3 for details.

Relationship between nutritional status and perceived health status:

Analysis of the data with the Spearman correlation ($Z=0.877$) revealed there is no statistically significant relationship between nutritional status and perceived health status of black and white college women.

Discussion:

Leaving home to attend college may lead women to make unhealthy nutritional lifestyle choices. Based on the reports by the CDC and the recommendations of the Surgeon General this is an area, which needs to be explored. Because of the recommendations of the CDC, Healthy People 2010, literature review, and the current study, it is obvious something needs to be done to reduce the health-risks of college age women. Especially among black college women since, they are at a higher an increased health-risk to develop chronic disease. There is a clear need to reduce obesity and inactivity in some fashion. There is a significant personal cost, as well as, a monetary cost related to poor nutritional lifestyles. Thus, more studies are needed to find out why the nutritional lifestyles are worsening in the U.S., specifically in South Carolina, and what can be done to reverse this trend. Obviously some regions of the U.S. are worse than other regions. Recommendation for future studies to compare region(s) with the lowest rates to those with the highest rate(s) to evaluate the differences specifically looking at the biological, psychological, sociocultural, and environmental factors which influence eating lifestyles.

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Prevalence of Obesity Among U.S. Adults, by Characteristics

| Characteristics | 1991 | 1995 | 1998 | 1999 |
|--------------------------|------|------|------|------|
| Total | 12.0 | 15.3 | 17.9 | 18.9 |
| Sex | | | | |
| Men | 11.7 | 15.6 | 17.7 | 19.1 |
| Women | 12.2 | 15.0 | 18.1 | 18.6 |
| Age groups | | | | |
| 18-29 | 7.1 | 10.1 | 12.1 | 12.1 |
| 30-39 | 11.3 | 14.4 | 16.9 | 18.6 |
| 40-49 | 15.8 | 17.9 | 21.2 | 22.4 |
| 50-59 | 16.1 | 21.6 | 23.8 | 24.2 |
| 60-69 | 14.7 | 19.4 | 21.3 | 22.3 |
| >70 | 11.4 | 12.1 | 14.6 | 16.1 |
| Race, ethnicity | | | | |
| White | 11.3 | 14.5 | 16.6 | 17.7 |
| Black | 19.3 | 22.6 | 26.9 | 27.3 |
| Hispanic | 11.6 | 16.8 | 20.8 | 21.5 |
| Other | 7.3 | 9.6 | 11.9 | 12.4 |
| Educational Level | | | | |
| Less than High School | 16.5 | 20.1 | 24.1 | 25.3 |
| High school | 13.3 | 16.7 | 19.4 | 20.6 |
| Some college | 10.7 | 15.1 | 17.8 | 18.1 |
| College or above | 8.0 | 11.0 | 13.1 | 14.3 |

Prevalence of Obesity Among U.S. Adults, Region and State

| | 1991 | 1995 | 1998 | 1999 |
|---------------------------|------|------|------|------|
| New England | 9.9 | 12.1 | 14.4 | 14.9 |
| Maine | 12.1 | 13.7 | 17.0 | 18.9 |
| New Hampshire | 10.4 | 14.7 | 14.7 | 13.8 |
| Vermont | 10.0 | 14.2 | 14.4 | 17.2 |
| Massachusetts | 8.8 | 11.1 | 13.8 | 14.3 |
| Rhode Island | 9.1 | 12.9 | 16.2 | 16.1 |
| Connecticut | 10.9 | 11.9 | 14.7 | 14.5 |
| Mid Atlantic | 12.7 | 14.4 | 16.7 | 17.8 |
| New York | 12.8 | 13.3 | 15.9 | 16.9 |
| New Jersey | 9.7 | 14.2 | 15.2 | 16.8 |
| Pennsylvania | 14.4 | 16.1 | 19.0 | 19.9 |
| East north central | 14.1 | 17.2 | 19.1 | 20.3 |
| Ohio | 14.9 | 17.2 | 19.5 | 19.8 |
| Indiana | 14.8 | 19.6 | 19.5 | 19.4 |
| Illinois | 12.7 | 16.4 | 17.9 | 20.2 |
| Michigan | 15.2 | 17.7 | 20.7 | 22.1 |
| Wisconsin | 12.7 | 15.3 | 17.9 | 19.3 |
| West north central | 12.2 | 16.5 | 18.0 | 19.0 |
| Kansas | n/a | 15.8 | 17.3 | 18.5 |
| Minnesota | 10.6 | 15.0 | 15.7 | 15.0 |
| Iowa | 14.4 | 17.2 | 19.3 | 20.9 |
| Missouri | 12.0 | 18.0 | 19.8 | 20.8 |
| North Dakota | 12.9 | 15.6 | 18.7 | 21.2 |
| South Dakota | 12.8 | 13.6 | 15.4 | 19.0 |
| Nebraska | 12.5 | 15.7 | 17.5 | 20.2 |
| South Atlantic | 11.1 | 15.6 | 18.6 | 19.3 |
| District of Columbia | 15.2 | n/a | 19.9 | 17.9 |
| Delaware | 14.9 | 16.2 | 16.6 | 17.1 |
| Maryland | 11.2 | 15.8 | 19.8 | 17.6 |
| Virginia | 10.1 | 15.2 | 18.2 | 18.6 |
| West Virginia | 15.2 | 17.8 | 22.9 | 23.9 |
| North Carolina | 13.0 | 16.5 | 19.0 | 21.0 |
| South Carolina | 13.8 | 16.1 | 20.2 | 20.2 |
| Georgia | 9.2 | 12.6 | 18.7 | 20.7 |
| Florida | 10.1 | 16.5 | 17.4 | 17.9 |
| East south central | 13.1 | 17.8 | 20.0 | 21.2 |
| Kentucky | 12.7 | 16.6 | 19.9 | 21.1 |
| Tennessee | 12.1 | 18.0 | 18.5 | 20.1 |
| Alabama | 13.2 | 18.3 | 20.7 | 21.8 |
| Mississippi | 15.7 | 18.6 | 22.0 | 22.8 |
| West south central | 13.1 | 15.2 | 19.9 | 21.0 |
| Arkansas | 12.8 | 17.3 | 19.2 | 21.9 |
| Louisiana | 15.7 | 17.4 | 21.3 | 21.5 |
| Oklahoma | 11.9 | 13.0 | 18.7 | 20.2 |
| Texas | 12.7 | 15.0 | 19.9 | 21.1 |
| Mountain | 9.6 | 12.0 | 14.1 | 14.5 |
| Montana | 9.5 | 12.6 | 14.7 | 14.7 |
| Idaho | 11.7 | 13.8 | 16.0 | 19.5 |
| Colorado | 8.4 | 10.0 | 14.0 | 14.3 |
| New Mexico | 7.8 | 12.7 | 14.7 | 17.3 |
| Arizona | 11.0 | 12.8 | 12.7 | 11.6 |
| Wyoming | n/a | 13.9 | 14.5 | 16.4 |

| | | | | |
|------------|------|------|------|------|
| Utah | 9.7 | 12.6 | 15.3 | 16.3 |
| Pacific | 10.2 | 14.2 | 17.0 | 18.1 |
| Washington | 9.9 | 13.5 | 17.6 | 17.7 |
| Nevada | n/a | 13.3 | 13.4 | 15.3 |
| Oregon | 11.2 | 14.7 | 17.8 | 19.6 |
| California | 10.0 | 14.4 | 16.8 | 18.1 |
| Alaska | 13.1 | 19.2 | 20.7 | 19.2 |
| Hawaii | 10.4 | 10.4 | 15.3 | 15.3 |
| U.S. Total | 12.0 | 15.3 | 17.9 | 18.9 |